NOTES AND LITERATURE.

ZOÖLOGY.

Notes on Recent Fish Literature.— In the *Transactions of the Liverpool Biological Society* (XVII, 1903) Mr. Walter M. Tattersall takes up again the classification of the lancelets in connection with the study of Professor Herdman's collection from Ceylon.

Tattersall recognizes about 12 species, with two or three marked "varieties." These he arranges under two generic heads, Branchiostoma and Asymmetron. As a synonym of Asymmetron (1893) he places Epigonichthys (1876). The last mentioned name has of course priority over Asymmetron, if the two are identical. "Subgenera" Tattersall proposes to "abolish altogether" because most of those proposed contain but a single species; an inadequate reason for those who mark divergence of character rather than number of species, by the use of subgeneric names. Mr. Tattersall regards the American *B. caribæum* as identical with *B. lanceolatum* of Europe, which conclusion is not unlikely, as the only difference known is the usually smaller number of post-anal muscular impressions in the American form (9 or 10 instead of 10, 11, 12 or 13). The Japanese Lancelet (*B. japonicum* = *B. nakagawæ*) is the same as the Ceylon species, *B. belcheri*, and that again is indistinguishable from the European. It has 63 or 64 muscular impressions while *B. lanceolatum* has 60 to 63 and *B. caribæum* 58 to 61. The averages of specimens counted indicate a slight increase in number of segments in Asiatic specimens, a slight decrease in American.

Tattersall rejects the genus Amphioxides, based on *A. pelagicus* and characterized by the absence of oral cirri "because the absence of oral cirri is no doubt a result of its pelagic life." But if pelagic life brings about such important structural modifications, a matter by no means proved, this is no reason why we should not regard these modifications as of generic value. If Amphioxides is really without cirri, as is probably the case, it is surely a valid genus.

Mr. Tattersall states that "Jordan and Snyder consider *B. nakagawæ* a new species solely on account of its geographical distribution." In this he seems to miss the point. *B. belcheri* was described from Borneo in very unsatisfactory fashion. The Japanese lancelet showed

points of difference. As in almost every case, the shore fishes of Japan are specifically different from their analogues in Borneo, it is antecedently probable that the lancelets differ also. It appears that this is not the case, as a correct account of *B. belcheri* agrees substantially with *B. nakagawæ* (earlier called *japonicum*). Yet Mr. Tattersall finds a certain average difference. The commonest formula of myotomes in *B. belcheri* is 37–17–9, while in *B. japonicum* it is 36–17–11. As these little creatures have so few tangible characters, minute differences which can be made out have a greater relative importance.

In the *Bulletin of the Museum of Comparative Zoölogy* (Vol. 39, No. 8) Mr. Samuel Garman gives an account of the fishes taken by Mr. Alexander Agassiz and his party on the "Albatross," about the coral reefs of Fiji and the great Barrier Reef of Australia. Fourteen new species are described and well figured, nearly all of them from Fiji.

In the *Bulletin of the Fish Commission* (1903), Dr. Oliver P. Jenkins gives a final account of the splendid collection of fishes made by him in Hawaii in 1889. Two hundred fifty-four species are included in this connection, and in this and two preceding papers ninety-three species are described as new. The fauna of Hawaii is essentially that of the tropical Pacific. The same genera occur as in the other islands, but not all the genera. Many of the types characteristic of the south seas, as Periophthalmus, Synancidium, Variola, Terapon, Cæsia, never reach Hawaii. A large percentage of the species of Hawaii are peculiar to that archipelago. Thus although Hawaii, like other groups of Islands, has Scari, Holocentri, Gobies, etc., it has its own species in these groups, for the most part unlike those found in Samoa or Tahiti. The faunal isolation of Hawaii may be due in part to the direction of the currents, which set to the westward, while at Samoa their general direction is eastward. The new genera in Jenkins' paper are Scaridea, Cirrhitoidea, Eviota, Chlamydes, the last two being gobies. The excellent plates in this paper are by Mr. William S. Atkinson.

In the *Proceedings of the U. S. National Museum* (XXVI, 1903), Dr. Gill takes up Dr. Boulenger's studies of the bones of the Opah, *Lampris luna*. Dr. Gill makes a very different interpretation of the osteology of the shoulder girdle from that of Dr. Boulenger. He finds the so-called infraclavicle to be the hypocoracoid, and believes that the bones of the Opah differ little from those of the related

mackerel-like fishes. He finds no warrant in associating the Opah with the sticklebacks to form a group Catosteomi. The present writer agrees fully with Dr. Gill in his view of this matter.

In the *Proceedings of the U. S. National Museum* (XXVI, 1903), Dr. Gill discusses the generic names in a forgotten work of Heinrich Friedrich Linck, 1790. "Versuch einer Eintheilung der Fische nach der Zähnen" in "Magazin für das Neueste aus der Physik und Naturgeschickte," published at Gotha. The paper is without value, but some of its generic names antedate those in common use. These are Mustelus for *Mustelus lævis* = *Squalus mustelus*. This antedates the use of the name for *Mustelus canis*, for which Dr. Gill suggests the new group name, Cynias. Pristis and Mola of Linck are equivalent to the genera later so named by Latham and Cuvier. The other new generic names are Rhinobatos (without type indicated), Callichthys (no type), Alosa (no type), Thymallus (no type), Soarus (definition unintelligible), Barbatula (= Cobitis).

Gill further shows that the name Macrodon Schinz (1822) was intended for the genus of Sciænoid fishes called Ancylodon by Cuvier in 1817, preoccupied by Ancylodon Illiger 1811, and later named Sagenichthys by Berg. The type of the Sciænoid genus should, therefore, stand as *Macrodon ancylodon*.

For the genus of Erythrinidæ called Macrodon by Müller in 1842, Gill substitutes the name Hoplias.

He further calls attention to the fact that Oken in 1817 (in *Isis*) gave classical names to the genera of fishes left with French names only by Cuvier in the first edition of the Règne Animal of the same year. From this work, the following names must date: Monacanthus, Alutera, Triacanthus, Curimatus, Piabucus, Cirrhinus, Bagre, Lota, Brosme (not Brosmius, a later form), Monochirus, Aurata, Plectropomus, Priacanthus, Stellifer, Sander (= Lucioperca), Zingel, Otolithes and Chelmo.

In the same *Proceedings*, Mr. B. A. Bean figures the rare eel *Ahlia egmontis* from Barbados. It has been received also from the Tortugas.

In the *Mark Anniversary Volume*, Dr. C. R. Eastman discusses again the character of the extraordinary structures found in Carboniferous rocks and known as Edestus, with a bibliography of the subject. These are now believed to be coalescent whorls of teeth of some cestraciont shark.

In the *Proceedings of the Washington Academy of Sciences* (Vol. V, pp. 189–229), Messrs. Edmund Heller and Robert E. Snodgrass give an account of the new species of fishes taken in their expedition to the Galapagos under the auspices of the Hopkins Seaside Laboratory of Stanford University. The following are the new genera and species:

Evolantia for *Exœoctus micropterus*, *Sphyræna idiastes*, *Apogon atrodorsatus*, *Galeagra pammelas* (a new genus allied to Acropoma), *Corvula eurymesops*, *Sciæna perissa*, *Azurina eupalama*, *Pomacentrus redemptus*, *Pomacentrus arcifrons*, *Nexilosus albemarleus* (a new genus allied to Hypsypops), *Scarus noyesi*, *Pontinus strigatus*, *Eleotris tubularis*, *Cotylopus cocoënsis*, *Gobius rhizophoræ* (a species of Coryphopterus), *Gobius gilberti* (a species certainly referable to the Japanese genus Pterogobius), *Arbaciosa truncata*, *Malacoctenus zonogaster*, *Lepisoma jenkinsi*, *Encheliophis jordani*, *Petrotyx hopkinsi*, *Eutyx diagrammus* (Petrotyx and Eutyx are new genera of Brotulidæ), *Antennarius togus*, *Allector cheloniæ* (Allector is a new genus allied to *Chaunax*). A list of all the species constituting this splendid collection will appear later.

In the *Proceedings of the Biological Society of Washington* (XVI, 1903), Austin H. Clark shows that the earliest name of the common American Eel is *Anguilla chrisypa* Rafinesque, the name meaning "besmeared or anointed below." Rafinesque calls it "Gold-breast."

In the *Bulletin du Museum d' Histoire Naturelle* Paris (1903), Dr. Pellegrin describes a number of new species of Cichlidæ, one of them, *Heros* (*Cichlasoma*) *labridens*, being from Huasteca Potosina, from the veteran naturalist, Dr. Alfredo Dugès of Guanajuato. It is near *Cichlasoma bartoni*. Several others are from Guiana.

In the *Bulletin of the U. S. Fish Commission* (1902) Professor W. J. Mœnkhaus describes a new species of Darter, *Hadropterus evermanni* from Lake Tippecanoe in Indiana.

D. S. J.

BOTANY.

Notes. — Professor Ganong's address on the cardinal principles of ecology is published in *Science* of March 25.

Daniel gives an account of a graft-hybrid between pear and quince in the *Revue Générale de Botanique* of Jan. 15.